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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/506,553
Filing Date: October 06, 2004
Appellant(s): PAPKE, NICOLAI

Ashley I. Pezzner
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 6/12/08 appealing from the Office action mailed 8/31/07.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

4683267	Lindner	7-1987
4480071	Natarajan	10-1984
5889115	Yabuta	3-1999
5426156	Bederke	6-1995
6090319	Sharma	7-2000
JP 06240105 A	Miyawaki	8-1994

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyawaki (JP 06240105) in view of Linder (US 4683267).

Miyawaki discloses a resin composition comprising a 100 wt parts polyacetal, 1-100 wt parts acid anhydride modified polyolefin, 0.1-5 wt parts esterification catalyst and 0-150 wt parts filler (abstract). The modified polyolefin improves impact strength and is thus deemed an additive (abstract). The esterification catalyst acts to react the polyacetal with the polyolefin [0003]. A molded article is disclosed in Example 1.

Miyawaki discloses reacting carboxyl-terminated polyolefins with hydroxyl-terminated polyacetal resins using catalysts such as tetrabutyl titanate, triethylamine and the like [0006] but Miyawaki does not include the use of the catalysts in Claim 1.

Lindner disclosed molding compositions. Said compositions comprise reacting a carboxyl-terminated carbonic acid aryl ester and a hydroxyl-terminated polyester

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(Column 5 lines 49-50) using a esterification catalyst such as triethylamine, butyl titanate and the like (Column 5 Lines 54-56).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Miyawaki the use of butyl titanate, as taught by Linder, as it is recognized in the art as being functionally equivalent to triethylamine.

Miyawaki does not disclose the use of between 0.00001 to 0.005 wt% catalyst. Linder discloses the use of 0.001-0.03 pph of catalyst and further discloses that smaller quantities of catalyst may be sufficient if the starting materials contain no basic impurities when an acid catalyst is used and no acid impurities when basic catalysts are used (Column 5 lines 57-64). Linder discloses that the quantity of catalyst is preferably as small as possible in order to avoid coloring the product.

It would have been obvious to one of ordinary skill in the art at the time of the invention to decrease the amount of catalyst in Miyawaki, as taught by Linder, in order to avoid coloring the product. Use of 0.001 meets the range requirements of Claims 1 and 27.

2. Claims 1 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyawaki and Linder in view of Yabuta (US 5889115).

Miyawaki and Linder include elements of the invention as set forth above. The esterification catalyst is disclosed to be triethylamine and the like [0006]. Miyawaki does not include the use of the catalysts in Claim 1.

Yabuta discloses coating compositions. Said compositions comprise an esterification catalyst such as triethylamine, tetrabutylphosphonium bromide and the like (Column 8 Lines 27-29).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Miyawaki and Linder the use of tetrabutylphosphonium bromide, as taught by Yabuta, as it is recognized in the art as being functionally equivalent to triethylamine. The catalyst amount of 0.001 as set forth in Miyawaki v. Linder above meets the requirements of the claims.

3. Claims 1 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyawaki and Linder in view of Bederke (US 5426156).

Miyawaki and Linder include elements of the invention as set forth above. The esterification catalyst is disclosed to be triethylamine and the like [0006]. Miyawaki does not include the use of the catalysts in Claim 1.

Bederke discloses compositions for surface coatings. Said coatings comprise esterification catalysts such as triethylamine, triphenylphosphine and the like (Column 5 Lines 2-8).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Miyawaki and Linder the use of triphenylphosphine, as taught by Bederke, as it is recognized in the art as being functionally equivalent to triethylamine. The catalyst amount of 0.001 as set forth in Miyawaki v. Linder above meets the requirements of the claims.

4. Claims 1, 2, 7, 11 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Natarajan (US 4480071) in view of Linder (US 4683267).

Natarajan discloses isocyanate coupled reinforced oxymethylene polymers. Said polymer comprise 0-40 wt% glass fibers (Column 8 Line 51), 0.2-2 wt% isocyanate compound, or coupling agent, 0.15-2.5 wt% isocyanate catalyst (Column 8 Line 31), the remaining being polyoxymethylene polymer (abstract, Examples). The coupling agent couples the oxymethylene polymer and the filler together (Column 7 lines 49-50). The catalyst can be titanium based, such as tetrabutyl titanate and triethylamine (Column 8 Line 8). The glass fiber acts as a reinforcing fiber and Column 13 Line 42 discloses molded articles from the composition.

The esterification catalyst is disclosed to be triethylamine and the like (Column 8 Line 12-13). Natarajan does not include the use of the catalysts in Claim 1.

Lindner disclosed molding compositions. Said compositions comprise a esterification catalyst such as triethylamine, butyl titanate and the like (Column 5 Lines 54-56).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Natarajan the use of butyl titanate, as taught by Linder, since it is recognized in the art as being functionally equivalent to triethylamine.

Natarajan does not disclose the use of between 0.00001 to 0.5 wt% catalyst. Linder discloses the use of 0.001-0.03 pph of catalyst and further discloses that smaller quantities of catalyst may be sufficient if the starting materials contain no basic

impurities when an acid catalyst is used and no acid impurities when basic catalysts are used (Column 5 lines 57-64). Linder discloses that the quantity of catalyst is preferably as small as possible in order to avoid coloring the product.

It would have been obvious to one of ordinary skill in the art at the time of the invention to decrease the amount of catalyst in Natarajan, as taught by Linder, in order to avoid coloring the product. Use of 0.001 meets the range requirements of the claims.

5. Claims 1, 2, 7, 11, 15, 16 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Natarajan and Linder in view of Yabuta (US 5889115).

Natarajan and Linder include elements of the invention as discussed in the action dated 10/23/06 and as set forth above. The esterification catalyst is disclosed to be triethylamine and the like (Column 8 Line 12-13). Natarajan does not include the use of the catalysts in Claim 1.

Yabuta discloses coating compositions. Said compositions comprise a catalyst such as triethylamine, tetrabutylphosphonium bromide and the like (Column 8 Lines 27-29).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Natarajan and Linder the use of tetrabutylphosphonium bromide, as taught by Yabuta, as it is recognized in the art as being functionally equivalent to triethylamine. The catalyst amount of 0.001 as set forth in Natarajan v. Linder above meets the requirements of the claims.

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6. Claims 1, 2, 7, 11, 15, 17 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Natarajan and Linder in view of Bederke (US 5426156).

Natarajan and Linder include elements of the invention as discussed in the action dated 10/23/06 and as set forth above. The esterification catalyst is disclosed to be triethylamine and the like (Column 8 Line 12-13). Natarajan does not include the use of the catalysts in Claim 1.

Bederke discloses compositions for surface coatings. Said coatings comprise catalysts such as triethylamine, triphenylphosphine and the like (Column 5 Lines 2-8).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Natarajan and Linder the use of triphenylphosphine, as taught by Bederke, as it is recognized in the art as being functionally equivalent to triethylamine. The catalyst amount of 0.001 as set forth in Natarajan v. Linder above meets the requirements of the claims.

7. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Natarajan and Linder in view of Bederke or Yabuta in further view of Sharma (US 6090319).

Natarajan, Linder, Bederke, and Yabuta include elements of the invention as discussed above. Natarajan, Bederke, Yabuta and Linder do not include the use of a glass fiber bundle which has been impregnated with a polyacetal resin and then bonded to a second component.

Sharma discloses a method for coating fibers. Said method comprises step (c) impregnating fiber strands with a first thermoplastic resin material to produce a long fiber reinforcing composite structure and (g) coating said long impregnated fiber with a second thermoplastic resin material, wherein the first and second thermoplastic resin materials are bonded at the first and second thermoplastic resin material interface (Column 2 Lines 31-65). The first thermoplastic resin can be a polyacetal (Column 5 Line 20). Said method improves the adhesion between the fibers and the first thermoplastic resin.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Natarajan, Linder and Bederke or Yabuta the method taught by Sharma to coat said fibers to improve the adhesion between the fibers and the first thermoplastic resin in order to have a composition with superior properties.

8. Claims 1, 2, 7, 9, 10, 11, 15, 16, 17 and 18-27 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1,4,9,10-12,16-24 of US 7169887 in view of Laughner (US 5286790).

Although the conflicting claims are not identical, they are not patentably distinct from each other because the reaction of components (a), (b) and (c) where (a) is a polyacetal and (c) is a Lewis acid in Claims 1 and 5 of '887 meet the limitations of Claims 1, 2 and 18-27 of the instant application. Claim 10 of '541 meets the limitations of instant Claim 9, Claim 11 of '541 meets the limitations of instant Claim 10, Claim 12 of '541 meets the requirements of instant Claim 11, Claim 16 of '541 meets the

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limitations of instant Claim 15, Claim 18 of '541 meets the limitations of instant Claim 15, Claim 19 of '541 meets the limitations of instant Claim 16 and Claim 20 of '541 meets the limitations of instant Claim 17.

'887 discloses the use of polycarbonates, polyesters, polyolefins and the like (Claim 1) however '887 does not disclose the use of polyacetal resins.

Laughner discloses blended compositions. Said blends include a include the use of a thermoplastic resin such as polycarbonate, polyester, polyolefin, polyamide, polyurethane and polyacetal (Column 2 Lines 38-40).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in '887 the use of a polyacetal, as taught by Laughner, as it is recognized in the art to be functionally equivalent to polycarbonates, polyesters, polyolefins and the like.

(10) Response to Argument

9. The Examiner notes that Applicant has summarized/grouped the arguments into 4 categories, encompassing and addressing each ground of rejection set forth by the Examiner.

Group 1 joins together rejections 1-3 (as set forth above and in Applicant's Grounds of Rejection to be reviewed on Appeal) based on Miyawaki as the primary reference

Group 2 joins rejections 4-7 based on Natarajan as the primary reference,

Group 3 is based on the double patenting rejection

Group 4 is a separate argument based on the range requirements of claims 18-27 for which Natarajan is the primary reference.

10. Regarding arguments drawn to Group 1, rejections 1-3 based on Miyawaki as the primary reference: Applicant argues the weight percent required by the claims is not met by Miyawaki and that Miyawaki states "when there are too few amounts of catalysts, a reaction cannot fully progress and effectiveness of this invention cannot be acquired." As such Applicant argues Miyawaki teaches that 0.01% of catalyst is needed and a person of ordinary skill would not look to Linder, Yabuta or Bederke to use a low amount of catalyst. Applicant argues if the amount of catalyst of Linder was combined with Miyawaki the reaction would not fully progress and as such the reference teaches away from the claimed invention.

The Examiner disagrees. Motivation to use the catalyst of Linder in the composition of Miyawaki (i.e. they are taught to be functional equivalents for a similar reaction between carboxyl and hydroxyl groups) is proper. Given the teachings of Linder, that one desires to use as low as an amount of catalyst possible to prevent coloring, the Examiner finds that one of ordinary skill would be motivated to decrease the amount of catalyst. Further, one of ordinary skill would recognize that different catalysts require different amounts to be effective and as such when one used the catalyst of Linder one would not necessarily use the range taught by Miyawaki. Applicant has only speculated that the reaction will not fully progress when using the amounts taught by Linder. Further, Linder teaches that it is beneficial to have a pure

starting material, without acid or base impurities, because by doing such one can use less catalyst. One looking to decrease the color of the final product, or, one looking to spend less money on expensive catalysts, would thusly look to the teachings of Linder to motivate them to use less catalyst in the composition. As such Applicant's arguments are not found persuasive and the combination of Miyawaki and Linder stands. As such the combinations of Miyawaki and Linder in further view of Yabuta or Bederke stand.

11. Regarding arguments drawn to Group 2, rejections 1-7 based on Natarajan as the primary reference: Applicant argues tetrabutyl titanate is one of 81 catalysts disclosed by Natarajan, no examples in Natarajan use n-butyl titanate and the applicant disagrees with the combination set forth. Applicant argues that they do not believe the prior art references are combinable.

The Examiner disagrees. That tetrabutyl titanate is one of 81 catalysts of Natarajan is moot. The rejection is based on the teaching of functional equivalence between Natarajan (who teaches triethylamine, over which the functional equivalence rejection was made, which in #57 of Applicant's list), and Linder, who teaches triethylamine to be a functional equivalent to butyl titanate. One would not expect Natarajan to have butyl titanate in the examples therein since it is Linder who is used to teach the functional equivalence thereof. The Examiner finds the references to be properly combined (i.e. proper motivation has been set forth to replace the catalyst of Natarajan with that of Linder) and as such Applicant's speculation, without additional arguments or evidence to support such, are not persuasive.

12. Regarding arguments drawn to Group 3, the double patenting rejection: Applicant argues the difference between the claimed case and the '887 patent are (1) the instant claims are drawn to a polyacetal molding composition and (2) the polymers disclosed by '887 are thermoplastic polymers. Applicant argues that applicant does not believe Laughner is combinable with the '887 patent and for these reasons the rejection should be withdrawn.

The Examiner disagrees. Laughner is used to teach the functional equivalence of thermoplastic polymers such as polyacetals, polycarbonates, polyester and polyolefins. As such, the requirements of the instant claims are met. It is unclear why Applicant does not believe these to be functional equivalents, or why the references are not combinable. Applicant has provided no evidence or arguments as evidence to such. As such Applicant's mere belief that the references are not combinable is not found persuasive.

13. Regarding arguments drawn to Group 4, the ranges of catalyst required by the claims: Applicant argues that claims 18, 21 and 24 require a maximum of 0.03%, 19, 22 and 25 require a maximum of 0.01% and claims 20, 23 and 26 require a maximum of 0.005% catalyst. Applicant argues Natarajan, who discloses a range of 0.15-2.5% teaches away from the claimed amount.

The Examiner disagrees. Firstly, the Examiner notes that the range of Natarajan anticipates the range of the independent claims. Secondly, Linder is used in

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combination with Natarajan to teach (1) the functional equivalence of catalysts, as discussed above, and (2) the motivation to decrease the amount of catalyst used, as also discussed above. It is unclear, based on this teaching, why one of ordinary skill would not be motivated to decrease the amount of catalyst used in order to decrease coloring and/or to save money. Applicant has only argued that Natarajan teaches away, however the Examiner notes that one of ordinary skill would recognize that different catalysts would have different optimal concentrations and that one would be motivated to decrease the overall amount given the teachings of Linder. As such Applicant's arguments are not persuasive.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Alicia M Toscano/

Examiner, Art Unit 1796

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QAS, TC1700